

Mentioned Companies: CAR, GM, GOOG, NFLX, TSLA

# Autonomous Taxis Could Be Cheaper Than Walking

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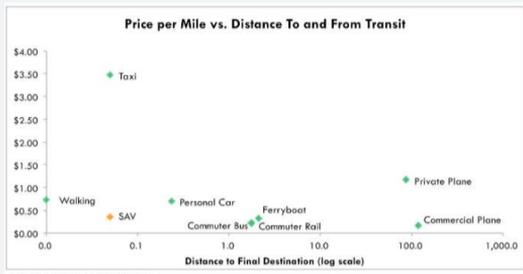
Shared autonomous vehicles (SAVs) will change the way we commute completely. ARK believes SAVs will not only be transformative from a public health perspective, but that they will deliver more value to consumers than any other form of transportation as measured by cost and convenience. ARK's research shows that even walking—assuming a \$3.99 Big Mac's worth of calories burned—would be more expensive than using autonomous taxis.

ARK expects shared autonomous vehicles to be cheaper than many modes of transportation, as shown below:[1]



Source: ARK Investment Management LLC

Based on the graph above, SAVs should offer unbeatable convenience for the price. When considering the travel distance to and from transit points (the walk to the bus stop, or from the bus stop to the restaurant), SAVs are quite competitive compared to other low cost transit options, as shown below.



Source: ARK Investment Management LLC

Does this mean that Americans will end up like the cartoon characters in the movie *Wall-E*, scarfing down Big Macs in the cushy backseat of an autonomous car?

Possibly.

ARK expects roughly a 30-fold increase in demand [2] for mobility as a service in the early 2020s as autonomous taxis prove both more convenient and less expensive than today's livery offerings. Further, autonomous vehicles will expand mobility to people previously unable to drive themselves, like the elderly, the blind, unlicensed teens, and lower income families unable to afford car ownership. As a result, ARK research suggests that vehicle miles travelled could increase by roughly 20%.[3]

However, autonomous vehicles could also enhance other modes of public transportation, much like Zipcar [CAR] customers use their rented cars for the *last mile* home. As shown in the first "Price per Mile" graph above, planes, buses, trains, and ferries that transport large volumes of people at once will still be cheaper than autonomous taxis in many situations, and the new inexpensive last-mile solution that shared autonomous vehicles will provide may even heighten demand for some of those services.

Lastly, research shows that when charged for services in small unit increments, such as per mile, people tend to consume less.[4][5] So while choosing to auto-taxi versus walk may be a more popular decision for some, we think walking will always have it's place along with other forms of public transit.

In the aggregate, as SAVs lead to more vehicle miles travelled, traffic congestion on may increase.[6][7] That said, sitting in traffic will be more enjoyable as passengers in autonomous taxis from Tesla [TSLA], General Motors [GM], or Google [GOOG] will be able to binge watch Netflix [NFLX] or power through emails.

Perhaps most important, society will benefit from a massive reduction in auto *accident rates*, the economy will benefit from capital freed up from stranded assets, and the collective psyche will benefit when the concept of "road rage" becomes folklore from another time.

1\* Note: ARK's estimate for the price per mile of shared autonomous vehicle is what we expect services to cost in 2020. All other prices depicted in the graph are today's rates.

2\* Source: ARK Investment Management LLC

3\* Source: ARK Investment Management LLC

4\* A study by Garfinkel, L., and Linhart, P.B. (1980) showed that consumers who paid per use for phone calls showed a decline in usage. Study: The revenue analysis of local measured telephone service. Public Utilities Fortnightly, Oct. 9, 15-21.

5\* <http://firstmonday.org/ojs/index.php/fm/article/view/535/456#ga80>  
1997, First Monday, Fixed fee versus unit pricing for information goods: competition, equilibria, and price wars

6\* <http://www.vtpti.org/avip.pdf>  
2020, Victoria Transport Policy, Autonomous Vehicle Implementation Predictions Implications for Transport Planning

7\* ARK Investment Management LLC

Tags:

- Autonomous Taxis
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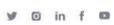
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